Paragraph RE: unnaturally cold Clearwater (and Snake) Rivers, prepared by D. Essig for insertion in Columbia Mainstem temperature TMDL, section 3.1

The Northwest Power Planing Council's Independent Science Group in their report "Return to the River" note the need to study the effect of unnaturally cold reaches of the Snake and Clearwater Rivers (below Hells Canyon and Dworshak Dams respectively) on fall Chinook (ISG, 2000). That the Clearwater River is distinctly cooler in the summer than it was prior to 1972 when Dworshak Reservoir began storing water is shown by USGS water temperature records at the Peck gage which date back to 1967[1]. Also, as is typical of regulated rivers, summer flows are greater now than for the previously un-impounded river. This has made the Clearwater River a source of anthropogenic cooling, not warming, to the lower Snake River. This effect has been manipulated since 1991 to increase coldwater releases specifically to further cool the lower Snake River so as to aid salmon passage. This unnatural cooling is not without adverse effects on fisheries resources in the Clearwater River. A similar but not so dramatic summer cooling effect is also evident in the Snake River due to Brownlee Reservoir. Although Snake River flows have also been augmented since 1991 to aid salmon passage (aka the 'salmon flush') these flows have not specifically been targeted toward temperature management. Furthermore, while the Snake downstream of Hells Canyon appears to be cooler in summer, it also appears to be warmer in the fall than would be the un-impounded river.

Reference:

ISG (Independent Science Group). 2000. Return to the River. Report to the Northwest Electric Power and Conservation Planning Council. Portland, OR. 536 pp.

[1] Water temperature data are available for the USGS gage on the Clearwater River @ Peck, a few miles below the confluence of the North Fork Clearwater, for 1967 to present, pre-dating Dworshak Dam on the North Fork by 5 years. More recent USGS data - from the NF Clearwater above Dworshak Reservoir, the main Clearwater @ Orofino (just above the NF confluence), and an additional downstream site on the Clearwater @ Spalding - show the dramatic cooling operation of Dworshak Dam has had on the lower Clearwater River, dropping summer temperatures by as much as 10°C.